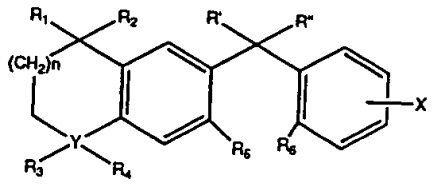
IN THE CLAIMS

Please cancel claims 1-3 and 33-61 without prejudice.

Please amend claims 4, 15, 19, 21, 22, 23, 27, 29, 30, 31, 32 as follows:

4. (Thrice Amended) A compound having the formula:



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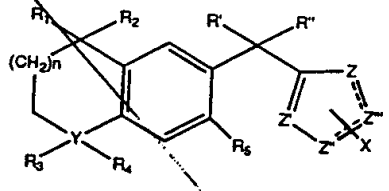

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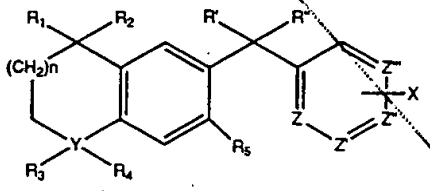

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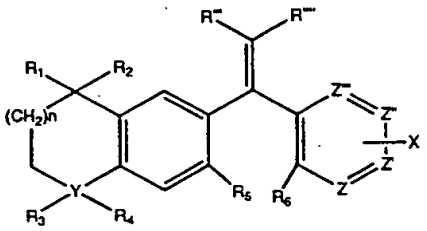

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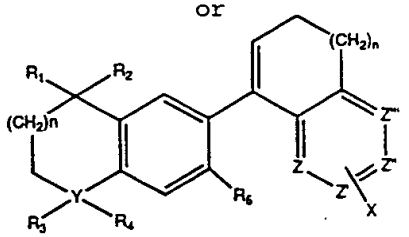

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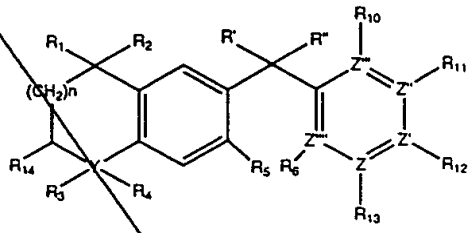

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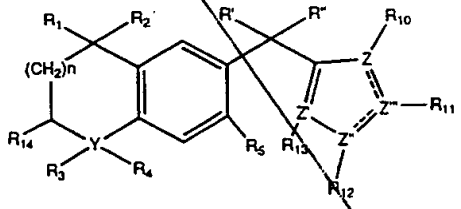


wherein

R_1 and R_2, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO_2, or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHOH, CO, SO, or SO_2;

R′ and R″ represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R′ or R″ taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, $(R_7R_8)N$-N=, $R_{17}O$-N=, $R_{17}N$=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R′″ and R″″ represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R′″ and R″″ taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8, or $(CF)_nCF_3$, but R_5 cannot be hydrogen if [together R_6, R_{10}, R_{11}, R_{12} and R_{13} are all hydrogen, Z, Z′, Z″, Z″′, and Z″″ are all carbon, and] R′ and R″ represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R′ and R″ taken together form an oxo, methano, or hydroxyimino group;

R_6, R_{10}, R_{11}, R_{12}, R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8 or $(CF)_nCF_3$, and exist only if the Z, Z′, Z″, Z′″, or Z″″ from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z′, Z″, Z′″, or Z″″ from which it originates is N, and where one of R_6, R_{10}, R_{11}, R_{12} or R_{13} is X;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

R_8 represents hydrogen or a lower alkyl having 1-6 carbons;

R_9 represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R_{14} represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R_{17} represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR_7 and SR_7 substituted alkenes), R_9, alkyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkenes), alkyl amines (including halogen, acyl, OR_7 and SR_7 substituted alkyls), and alkenyl amines (including halogen, a[c]ryl, OR_7 and SR_7 substituted alkenes);

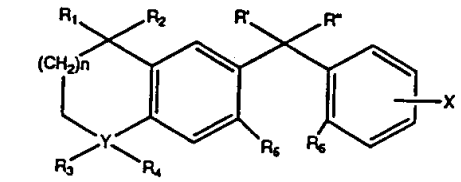
X is COOH, tetrazole, PO_3H, SO_3H, CHO, CH_2OH, $CONH_2$, COSH, $COOR_9$, $COSR_9$, $CONHR_9$, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH_2OH, $COHN_2$, $COOR_9$, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z", Z"' and Z"", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

15. (Twice Amended) A pharmaceutical composition comprising in a pharmaceutically acceptable vehicle suitable for enteral, parenteral, or topical administration, one or more compounds having the formula:



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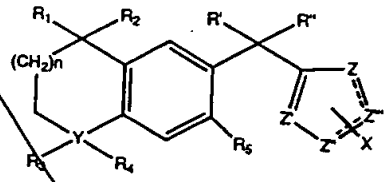

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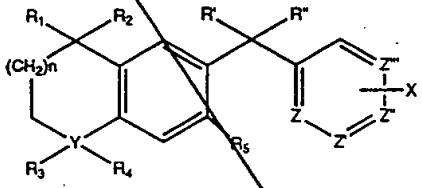

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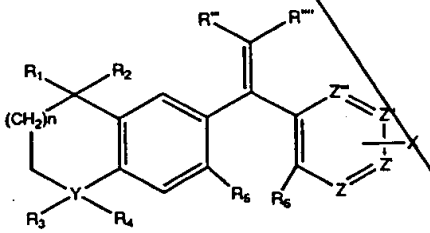

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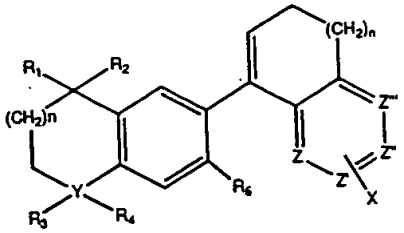

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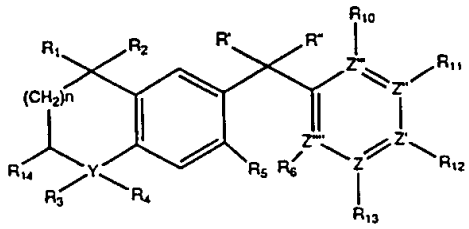

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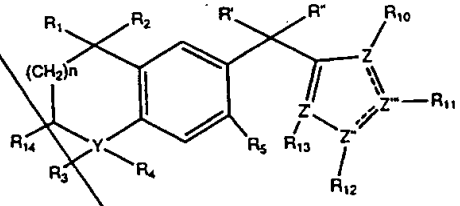


wherein

R_1 and R_2, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO_2, or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHOH, CO, SO, or SO_2;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, $(R_7R_8)N$-N=, $R_{17}O$-N=, $R_{17}N$=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R"" represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R"" taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8, or $(CF)_nCF_3$, but R_5 cannot be hydrogen if [together R_6, R_{10}, R_{11}, R_{12} and R_{13} are all hydrogen, Z, Z', Z", Z"', and Z"" are all carbon, and] R' and R" represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R_6, R_{10}, R_{11}, R_{12}, R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8 or $(CF)_nCF_3$, and exist only if the Z, Z', Z", Z'", or Z"" from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z", Z'", or Z"" from which it originates is N, and where one of R_6, R_{10}, R_{11}, R_{12} or R_{13} is X;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

R_8 represents hydrogen or a lower alkyl having 1-6 carbons;

R_9 represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R_{14} represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R_{17} represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR_7 and SR_7 substituted alkenes), R_9, alkyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkenes), alkyl amines

(including halogen, acyl, OR_7 and SR_7, substituted alkyls), and alkenyl amines (including halogen, a[c]ryl, OR_7 and SR_7, substituted alkenes);

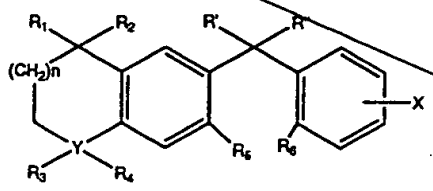
X is COOH, tetrazole, PO_3H, SO_3H, CHO, CH_2OH, $CONH_2$, COSH, $COOR_9$, $COSR_9$, $CONHR_9$, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH_2OH, $COHN_2$, $COOR_9$, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z", Z"' and Z"", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

19. (Twice Amended) A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising causing said process to be conducted in the presence of at least one compound having the formula:



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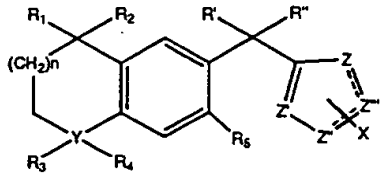

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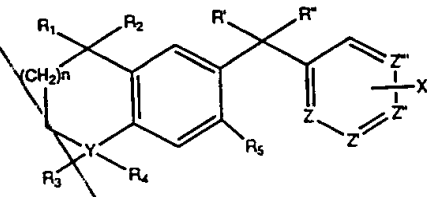

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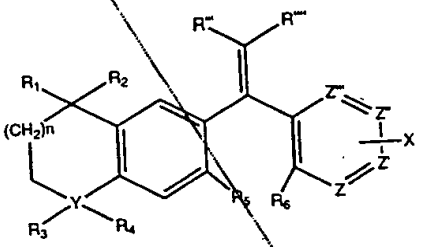

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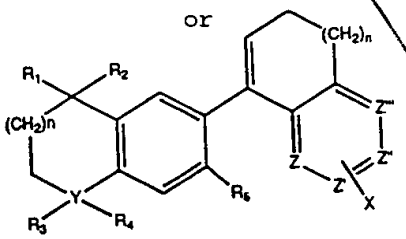

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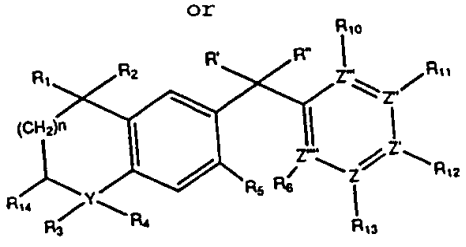

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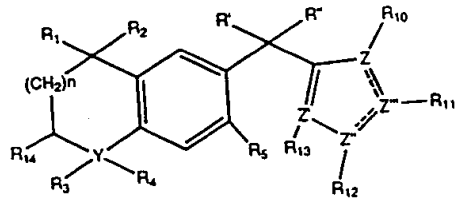


wherein

R_1 and R_2, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO_2, or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHOH, CO, SO, or SO_2;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, $(R_7R_8)N$-N=, $R_{17}O$-N=, $R_{17}N$=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R"" represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R"" taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8, or $(CF)_nCF_3$, but R_5 cannot be hydrogen if [together R_6, R_{10}, R_{11}, R_{12} and R_{13} are all hydrogen, Z,

Z', Z", Z"', and Z"" are all carbon, and] R' and R" represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R_6, R_{10}, R_{11}, R_{12}, R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8 or $(CF)_nCF_3$, and exist only if the Z, Z', Z", Z'", or Z"" from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z", Z'", or Z"" from which it originates is N, and where one of R_6, R_{10}, R_{11}, R_{12} or R_{13} is X;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

R_8 represents hydrogen or a lower alkyl having 1-6 carbons;

R_9 represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R_{14} represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R_{17} represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR_7 and SR_7 substituted alkenes), R_9, alkyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkenes), alkyl amines (including halogen, acyl, OR_7 and SR_7 substituted alkyls), and alkenyl amines (including halogen, a[c]ryl, OR_7 and SR_7 substituted alkenes);

X is COOH, tetrazole, PO_3H, SO_3H, CHO, CH_2OH, $CONH_2$, COSH, $COOR_9$, $COSR_9$, $CONHR_9$, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH_2OH, $COHN_2$, $COOR_9$, or COOW where W is a pharmaceutically acceptable

salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z", Z"' and Z"", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

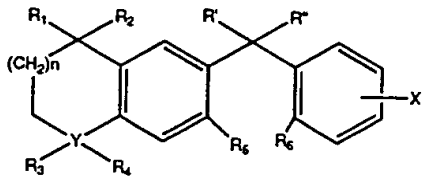
~~21~~ 18. (Twice Amended) A method according to claim 19 wherein said process is the *in vivo* modulation of lipid metabolism, *in vivo* modulation of skin-related processes, *in vivo* modulation of autoimmune diseases, *in vivo* modulation of fatty acid metabolism, *in vivo* modulation of malignant cell development, or *in vivo* modulation of premalignant lesions[, or *in vivo* modulation of programmed cell death].

~~22.~~ (Amended) The method according to claim [21] 19 wherein said process is the *in vivo* enhancement of programmed cell death.

~~23~~ 20. (Amended) The method according to claim [21] 19 wherein said process is the *in vivo* inhibition of programmed cell death.

27. (Twice Amended) A method for modulating a process mediated by one or more Retinoid X Receptors, said method comprising administering to a mammalian subject an amount, effective to modulate said process mediated by said one or more

Retinoid X Receptors, of one or more compounds having the formula:



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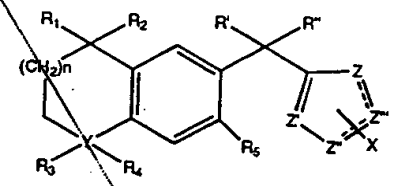

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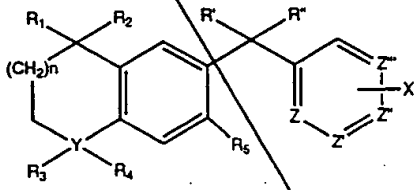

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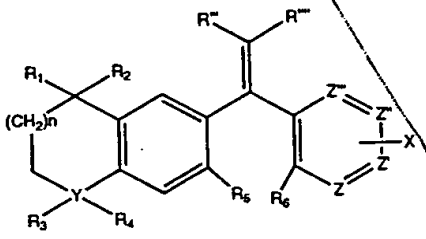

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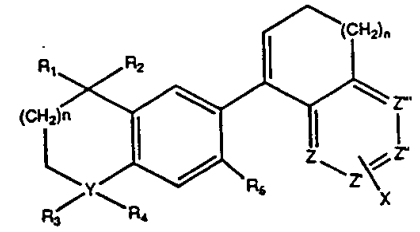

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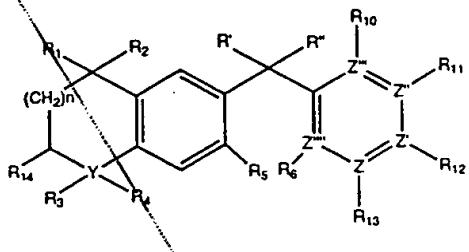

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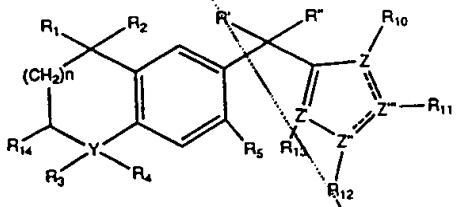


wherein

R_1 and R_2, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO_2, or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHOH, CO, SO, or SO_2;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, $(R_7R_8)N$-N=, $R_{17}O$-N=, $R_{17}N$=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R"" represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R"" taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8, or $(CF)_nCF_3$, but R_5 cannot be hydrogen if [together R_6, R_{10}, R_{11}, R_{12} and R_{13} are all hydrogen, Z, Z', Z", Z"', and Z"" are all carbon, and] R' and R" represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R_6, R_{10}, R_{11}, R_{12}, R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8 or $(CF)_nCF_3$, and exist only if the Z, Z', Z", Z'", or Z"" from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z", Z'", or Z"" from which it originates is N, and where one of R_6, R_{10}, R_{11}, R_{12} or R_{13} is X;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

R_8 represents hydrogen or a lower alkyl having 1-6 carbons;

R_9 represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R_{14} represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R_{17} represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR_7 and SR_7 substituted alkenes), R_9, alkyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkenes), alkyl amines (including halogen, acyl, OR_7 and SR_7 substituted alkyls), and alkenyl amines (including halogen, a[c]ryl, OR_7 and SR_7 substituted alkenes);

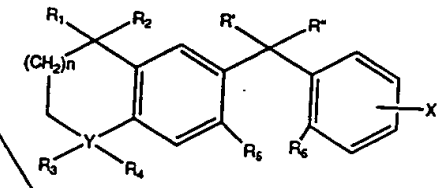
X is COOH, tetrazole, PO_3H, SO_3H, CHO, CH_2OH, $CONH_2$, COSH, $COOR_9$, $COSR_9$, $CONHR_9$, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH_2OH, $COHN_2$, $COOR_9$, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z", Z"' and Z"", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

29. (Twice Amended) A method for treating a mammalian subject requiring Retinoid X Receptor therapy comprising administering to such subject a pharmaceutically effective amount of one or more compounds having the formula:



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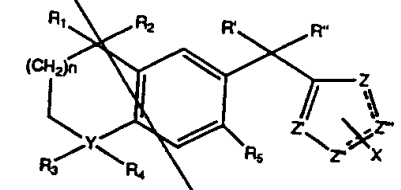

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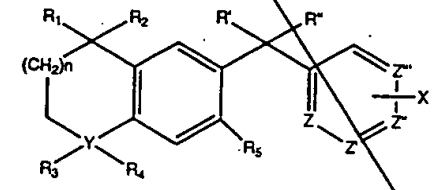

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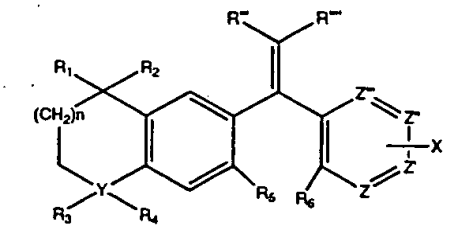

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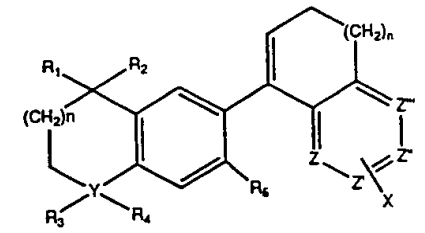

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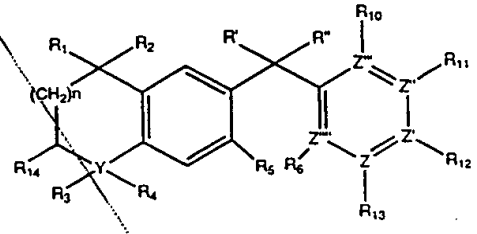

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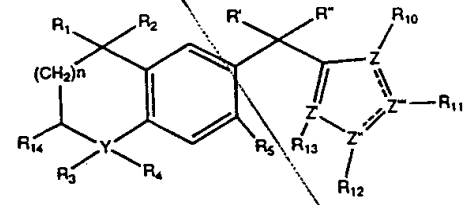


wherein

R_1 and R_2, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO_2, or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHOH, CO, SO, or SO_2;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R′ or R″ taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, $(R_7R_8)N$-N=, $R_{17}O$-N=, $R_{17}N$=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R′″ and R″″ represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R′″ and R″″ taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8, or $(CF)_nCF_3$, but R_5 cannot be hydrogen if [together R_6, R_{10}, R_{11}, R_{12} and R_{13} are all hydrogen, Z, Z′, Z″, Z″′, and Z″″ are all carbon, and] R′ and R″ represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R′ and R″ taken together form an oxo, methano, or hydroxyimino group;

R_6, R_{10}, R_{11}, R_{12}, R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8 or $(CF)_nCF_3$, and exist only if the Z, Z′, Z″, Z′″, or Z″″ from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z′, Z″, Z′″, or Z″″ from which it originates is N, and where one of R_6, R_{10}, R_{11}, R_{12} or R_{13} is X;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

R_8 represents hydrogen or a lower alkyl having 1-6 carbons;

R_9 represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R_{14} represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R_{17} represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR_7 and SR_7 substituted alkenes), R_9, alkyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkenes), alkyl amines (including halogen, acyl, OR_7 and SR_7 substituted alkyls), and alkenyl amines (including halogen, a[c]ryl, OR_7 and SR_7 substituted alkenes);

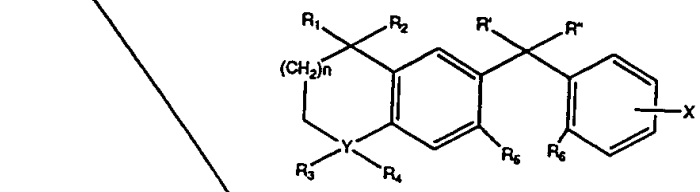
X is COOH, tetrazole, PO_3H, SO_3H, CHO, CH_2OH, $CONH_2$, COSH, $COOR_9$, $COSR_9$, $CONHR_9$, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH_2OH, $COHN_2$, $COOR_9$, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z", Z"' and Z"", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

30. (Twice Amended) A method for increasing plasma concentrations of high density lipoprotein in a mammalian subject comprising administering to such subject a pharmaceutically effective amount of one or more compounds having the formula:



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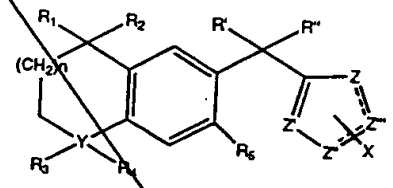

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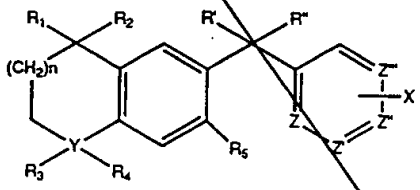

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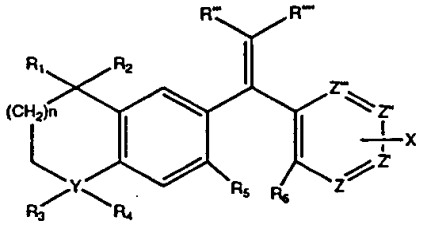

C 6 contd

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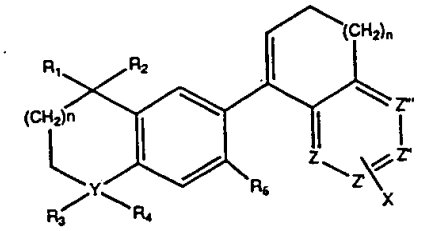

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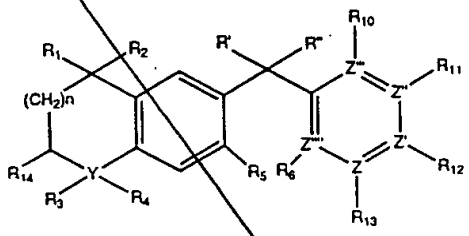

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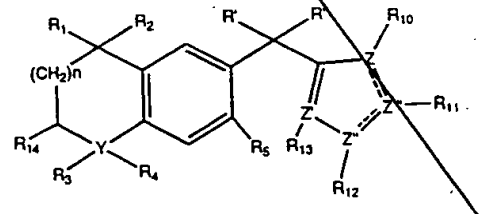


wherein

R_1 and R_2, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO_2, or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHOH, CO, SO, or SO_2;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, $(R_7R_8)N$-N=, $R_{17}O$-N=, $R_{17}N$=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R"" represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R"" taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8, or $(CF)_nCF_3$, but R_5 cannot be hydrogen if [together R_6, R_{10}, R_{11}, R_{12} and R_{13} are all hydrogen, Z, Z', Z", Z"', and Z"" are all carbon, and] R' and R" represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R_6, R_{10}, R_{11}, R_{12}, R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8 or $(CF)_nCF_3$, and exist only if the Z, Z', Z", Z'", or Z"" from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z", Z'", or Z"" from which it originates is N, and where one of R_6, R_{10}, R_{11}, R_{12} or R_{13} is X;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

R_8 represents hydrogen or a lower alkyl having 1-6 carbons;

R_9 represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R_{14} represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R_{17} represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR_7 and SR_7 substituted alkenes), R_9, alkyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkenes), alkyl amines (including halogen, acyl, OR_7 and SR_7 substituted alkyls), and alkenyl amines (including halogen, a[c]ryl, OR_7 and SR_7 substituted alkenes);

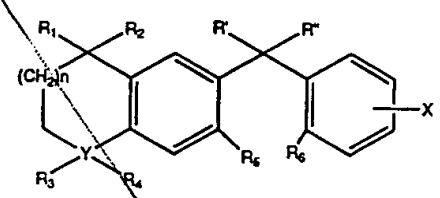
X is COOH, tetrazole, PO_3H, SO_3H, CHO, CH_2OH, $CONH_2$, COSH, $COOR_9$, $COSR_9$, $CONHR_9$, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH_2OH, $COHN_2$, $COOR_9$, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z", Z"' and Z"", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

31. (Twice Amended) A method for determining the presence of one or more Retinoid X Receptors comprising combining a compound as set forth below with a sample containing one or more unknown receptors and determining whether said compound binds to any receptor in said sample, said compound having the formula:



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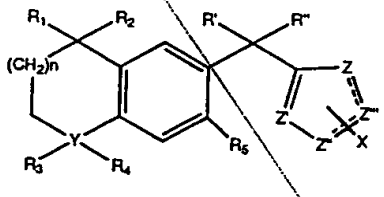

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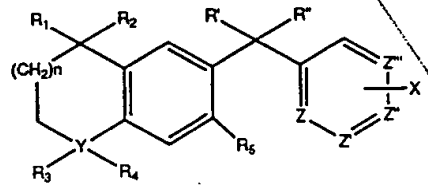

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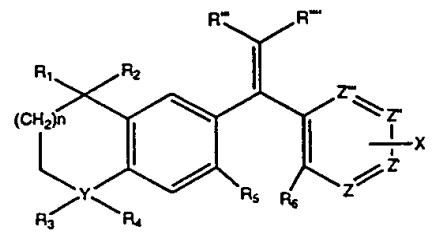

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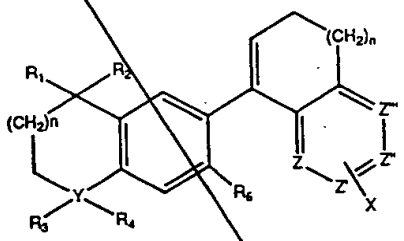

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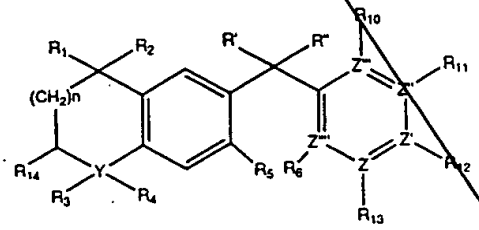

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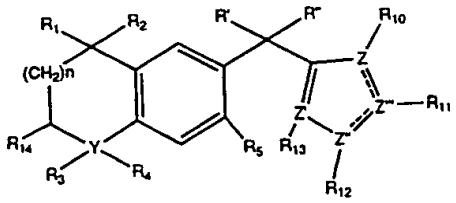


C6 cont'd

wherein

R_1 and R_2, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO_2, or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHOH, CO, SO, or SO_2;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, $(R_7R_8)N$-N=, $R_{17}O$-N=, $R_{17}N$=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R"" represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R"" taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8, or $(CF)_nCF_3$, but R_5 cannot be hydrogen if [together R_6, R_{10}, R_{11}, R_{12} and R_{13} are all hydrogen, Z, Z', Z", Z"', and Z"" are all carbon, and] R' and R" represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R_6, R_{10}, R_{11}, R_{12}, R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8 or

$(CF)_nCF_3$, and exist only if the Z, Z', Z", Z'", or Z"" from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z", Z'", or Z"" from which it originates is N, and where one of R_6, R_{10}, R_{11}, R_{12} or R_{13} is X;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

R_8 represents hydrogen or a lower alkyl having 1-6 carbons;

R_9 represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R_{14} represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R_{17} represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR_7 and SR_7 substituted alkenes), R_9, alkyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkenes), alkyl amines (including halogen, acyl, OR_7 and SR_7 substituted alkyls), and alkenyl amines (including halogen, a[c]ryl, OR_7 and SR_7 substituted alkenes);

X is COOH, tetrazole, PO_3H, SO_3H, CHO, CH_2OH, $CONH_2$, COSH, $COOR_9$, $COSR_9$, $CONHR_9$, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH_2OH, $COHN_2$, $COOR_9$, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

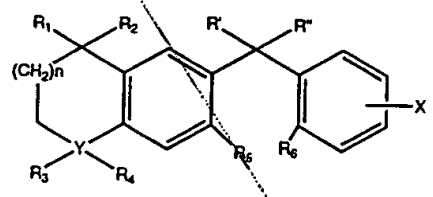
Z, Z', Z", Z"' and Z"", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to

another such Z which is O or S, and is not N if attached by a single bond to another such Z which is N;

n = 0-3; and

the dashed lines in the second and seventh structures shown depict optional double bonds.

32. (Twice Amended) A method of purifying Retinoid X Receptors comprising combining a compound as set forth below with a sample containing one or more said Retinoid X Receptors, allowing said compound to bind with Retinoid X Receptors, and separating out the bound combination of said compound and Retinoid X Receptor, said compound having the formula:



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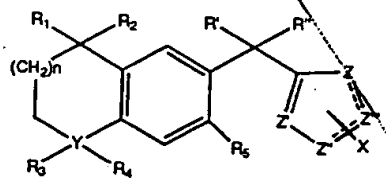

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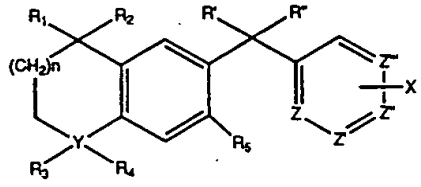

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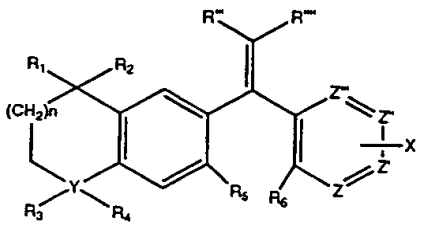

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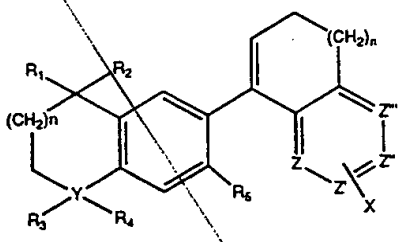
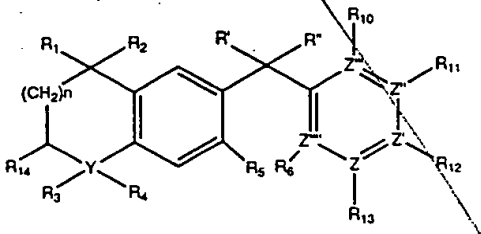


or



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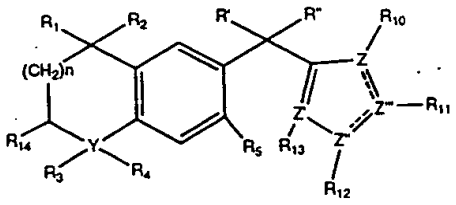

C 6 contd

wherein

R_1 and R_2, each independently, represent hydrogen or lower alkyl or acyl having 1-4 carbon atoms;

Y represents C, O, S, N, CHOH, CO, SO, SO_2, or a pharmaceutically acceptable salt;

R_3 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C or N;

R_4 represents hydrogen or lower alkyl having 1-4 carbon atoms where Y is C, but R_4 does not exist if Y is N, and neither R_3 or R_4 exist if Y is S, O, CHOH, CO, SO, or SO_2;

R' and R" represent hydrogen, lower alkyl or acyl having 1-4 carbon atoms, OH, alkoxy having 1-4 carbon atoms, thiol or thio ether, or amino,

or R' or R" taken together form an oxo (keto), methano, thioketo, HO-N=, NC-N=, $(R_7R_8)N$-N=, $R_{17}O$-N=, $R_{17}N$=, epoxy, cyclopropyl, or cycloalkyl group and wherein the epoxy, cyclopropyl, and cycloalkyl groups can be substituted with lower alkyl having 1-4 carbons or halogen;

R'" and R"" represent hydrogen, halogen, lower alkyl or acyl having 1-4 carbon atoms, alkyl amino,

or R'" and R"" taken together form a cycloalkyl group having 3-10 carbons, and wherein the cycloalkyl group can be substituted with lower alkyl having 1-4 carbons or halogen;

R_5 represents hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8, or $(CF)_nCF_3$, but R_5 cannot be hydrogen if [together R_6, R_{10}, R_{11}, R_{12} and R_{13} are all hydrogen, Z, Z', Z", Z"', and Z"" are all carbon, and] R' and R" represent H, OH, C_1-C_4 alkoxy or C_1-C_4 acyloxy or R' and R" taken together form an oxo, methano, or hydroxyimino group;

R_6, R_{10}, R_{11}, R_{12}, R_{13} each independently represent hydrogen, a lower alkyl having 1-4 carbons, halogen, nitro, OR_7, SR_7, NR_7R_8 or

$(CF)_nCF_3$, and exist only if the Z, Z', Z", Z'", or Z"" from which it originates is C, or each independently represent hydrogen or a lower alkyl having 1-4 carbons if the Z, Z', Z", Z'", or Z"" from which it originates is N, and where one of R_6, R_{10}, R_{11}, R_{12} or R_{13} is X;

R_7 represents hydrogen or a lower alkyl having 1-6 carbons;

R_8 represents hydrogen or a lower alkyl having 1-6 carbons;

R_9 represents a lower alkyl having 1-4 carbons, phenyl, aromatic alkyl, or q-hydroxyphenyl, q-bromophenyl, q-chlorophenyl, q-florophenyl, or q-iodophenyl, where q=2-4;

R_{14} represents hydrogen, a lower alkyl having 1-4 carbons, oxo, hydroxy, acyl having 1-4 carbons, halogen, thiol, or thioketone;

R_{17} represents hydrogen, lower alkyl having 1-8 carbons, alkenyl (including halogen, acyl, OR_7 and SR_7 substituted alkenes), R_9, alkyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkyls), alkenyl carboxylic acid (including halogen, acyl, OR_7 and SR_7 substituted alkenes), alkyl amines (including halogen, acyl, OR_7 and SR_7 substituted alkyls), and alkenyl amines (including halogen, a[c]yl, OR_7 and SR_7 substituted alkenes);

X is COOH, tetrazole, PO_3H, SO_3H, CHO, CH_2OH, $CONH_2$, COSH, $COOR_9$, $COSR_9$, $CONHR_9$, or COOW where W is a pharmaceutically acceptable salt, and where X can originate from any C or N on the ring, provided, however, that X cannot be COOH, CHO, CH_2OH, $COHN_2$, $COOR_9$, or COOW where W is a pharmaceutically acceptable salt when X originates from a C in the 2 or 6 position on the ring;

Z, Z', Z", Z"' and Z"", each independently, represent C, S, O, N, or a pharmaceutically acceptable salt, but is not O or S if attached by a double bond to another such Z or if attached to